### *AB-24 - Paper*

## Occupational Analysis: A Continuous Improvement Approach

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Faced with shrinking resources and a dynamic international environment, today's Air Force continues to undergo fundamental structural changes. The Air Force must find innovative ways to improve the way we do business; that is better, faster, and cheaper. The Air Force recognizes the need to improve and wisely adapt to meet the changing operational demands. In doing so, the Air Force has implemented "Quality Air Force (QAF)" (AF Handbook 90-502). QAF is a leadership commitment that inspires trust, teamwork, and continuous improvement everywhere in the Air Force. As Air Force managers are continually challenged with making critical decisions that affect training, retention, and promotion of personnel, unbiased and quantifiable information must be made available to them at a moment's notice.

The significance of this QAF exploration is critical for businesses and organizations that wish to survive in a competitive world. In order to succeed, it is important for managers and leaders to gather tools and experiences from others to create a benchmark for future improvement opportunities. With this in mind, the Occupational Analysis (OA) Program, of the Air Force Occupational Measurement Squadron (AFOMS) at Randolph AFB TX, has stepped up to Air Force leaderships' encouragement that internal organizations streamline business through their own Quality initiative.

For the past 30 years, the OA Program, has had the functional control for collecting and maintaining an occupational data base to provide information to Air Force managers about Air Force jobs. The OA Program is responsible for developing the data collection measurement tool, collecting and analyzing the data, and for reporting the results of the information collected to Air Force customers. Traditionally, AFOMS occupational analysts have surveyed Air Force enlisted personnel to determine what tasks they perform in their day-to-day jobs. They also survey senior Non-Commissioned Officers to gather opinions on task difficulty and training emphasis. Analysis of these data provides an excellent and unique view of the entire career field at a glance. The information gained from the OA program is used to (a) maintain Air Force occupational structures within the airmen and officer classification systems, (b) adjust or establish Air Force Specialty training programs, and (c) sustain or modify other Air Force personnel management systems.

For the first time, the Airmen Analysis Flight of AFOMS commissioned a Process

Action Team (PAT) to examine the OA process in its entirety. Six occupational analysts were assembled to review the processes, products, policies, guidance, objectives, and provide solutions or improvement opportunities necessary to accomplish a more effective OA Program. The PAT was formed in March 1997, and to date is reviewing and gathering data on solutions and improvement opportunities.
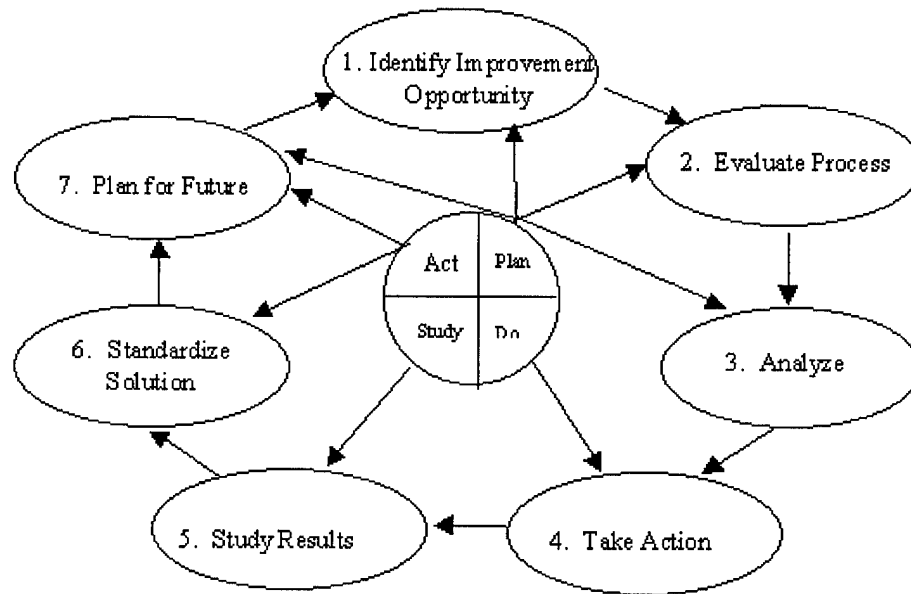
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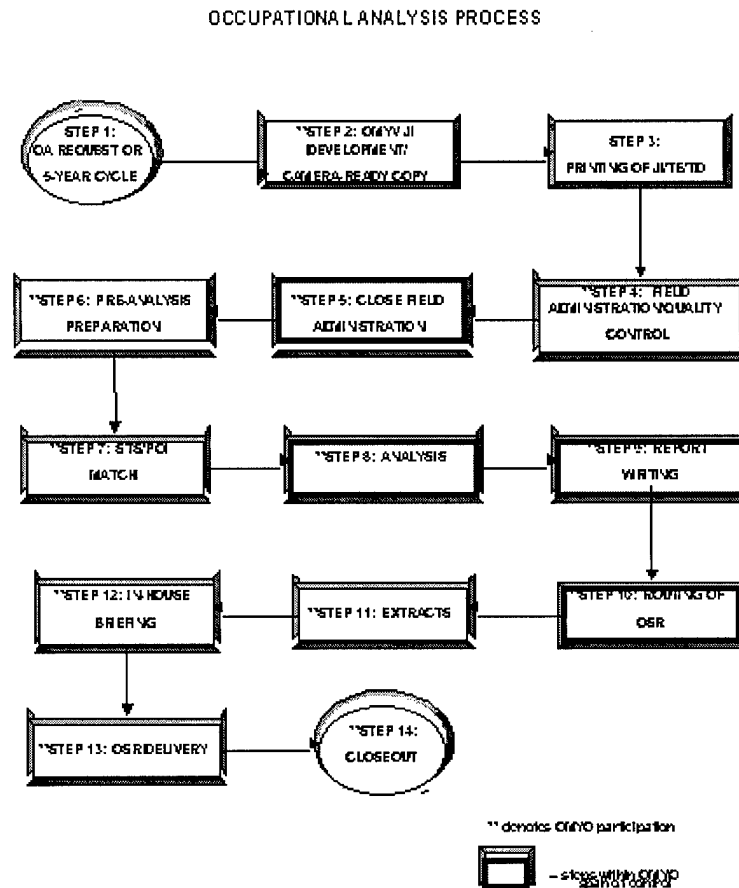
Figure 1

OCCUPATIONAL ANALYSIS PROCESS



Figure 2

*Method*

The review of the OA Program followed a systematic and systemic approach to plan, sequence, and implement improvement efforts using data through a seven-step "continuous improvement process (CIP)" (Air Force Handbook 90-503) (Figure 1). The CIP is based on the Shewhart cycle of plan, do, study, and act (PDSA). The CIP includes seven specific steps: identify improvement opportunity(ies); evaluate the process; analyze; take action; study results; standardize the solution(s); and plan for the future.

The PAT's charter was to review processes, products, policy, guidance, objectives, and solutions necessary to accomplish a more effective OA program. The first step of the CIP required the PAT to identify the key processes, process owners, customers, customer requirements, customer-identified critical success factors, and develop a macro-process flowchart. The goal in this first step of the CIP was to select the appropriate process(es) for improvement. The first order of business for the PAT is to clarify the direction of the PAT. Five areas of potential improvement opportunities were determined, which

included the job inventory, occupational survey report, the analyst, the unit, and internal and external customers.

With this clarification, the PAT developed a macro flowchart covering the overall key processes of the OA program. Members of the PAT consolidated the numerous portions of the OA process into a workable flowchart. The OA Program was organized into a 14-step flowchart (see Figure 2). A fundamental tenant of the CIP, dictates that changes affecting a certain step in any process are best accomplished when managers have direct control and authority of the policies and procedures for that step. Thus, data were gathered on each of these 14 steps to determine, not only, the complete range of duties and responsibilities required in each step and sub-steps, the time required (actual workdays) to complete each step, but also the section within AFOMS that retained the primary responsibility for each step.

The PAT used analysis projects completed and/or published from as far back as 1994 to gather and establish timelines for how long it took to complete the tasks and activities within each step. The data gathering phase of the PAT's review began with using co-workers as subject-matter experts, to gather detailed information about their part in the OA process. As required for documentation or collection of information, data sheets and checksheets were developed to organize, tally, analyze, and document information. In order to capture OA customers' impressions, needs and desires, or suggestions, the PAT developed questionnaires surveying actual and potential customers. These customers ranged from in-house customers to external customers, such as technical school personnel, major command personnel, researchers, and contractors. These customers were asked for comments and feedback on the quantity and quality of OA products, responsiveness, as well as suggestions for improvements. Information from these questionnaires further defined the criteria by which the effectiveness of the OA program would be evaluated.

Upon review of customer questionnaires, three themes emerged. Overwhelmingly, AFOMS customers found the data extremely useful and a viable resource for information. Another positive theme was that the presentations and variety of products provided to them were appropriate and necessary. The one negative theme consistent among several users was that they wished to receive the occupational data sooner. Subsequently, "time or responsiveness" was adopted as the PAT's overall measurement criteria and measure of success. The PAT revisited the time associated with the how long it took for the whole process and the time between each step within the 14 steps in the OA process and tightened up all the timelines. Once the PAT was satisfied that all timelines were accurate and complete, the final timeline for the complete OA process, from "cradle to grave", was determined to take 2 years and 3 months.

The second step of the CIP, "evaluating the process", resulted in identifying 4 of the 14 steps as targets for improvement. These four steps became the focus and challenge for the PAT. The four steps were: Step 5 – Close Field Administration; Step 8 – Analysis; Step 9 – Report Writing; and Step 10 – Routing of the OSR. These steps had the highest potential for successful implementation of improvements and fell under the direct purview and control of the OMYO Section Chief. These four steps were further dissected and stratified down to task level specific enough for detailed analysis and allowed for an

'as-is' flowchart depicting the work performed in each step. Timelines were captured for each task and sub-tasks within these four steps, and the total step time and the total OA process was recalculated. From this information and other empirical data collected (i.e., numbers of products produced, satisfaction indicators, etc.), a problem statement was developed for each of the four steps.

These problem statements became the focus of the PAT's improvement efforts. "Close Field Administration" (Step 5) was the first step, within the OA process requiring attention. This step covers the closing of an analysis project, to include the initiation and coordination of paperwork halting the receipt of additional case studies for input, to the "clean-up" of survey data, and finally to the correction of survey background data. The timeline for this step accounted for 12.2 weeks (61 workdays). The second step addressed by the PAT was "Analysis" (Step 8). This step included the analysis of survey data and approval of job structure analysis by management. Based on the timelines collected, "Analysis" accounted for 7 weeks (35 workdays). The third step in the OA process that the PAT reviewed was "Report Writing" (Step 9). This step encompassed the draft of a written narrative depicting the results of the job structure analysis. Based on timelines collected for this step, "Report Writing" accounted for 9 weeks (45 workdays). The final step the PAT reviewed was "Routing of the OSR" (Step 10). This step includes: the routing of the OSR draft through management within the Squadron; the preparation of a draft "camera-ready" report; to the release of the final OSR for mailing and publication. Based on timelines collected for this step, "Routing of the OSR" accounted for 18 weeks (90 workdays). These fours steps account for 46.2 weeks (231 workdays) or 40% of the total 2 years and 3 months it takes for the complete OA process.

When the timelines were calculated for these four steps, it became evident to the PAT that there were no desired timelines that could determine if the OA process was on track or to determine how far off the mark the existing timelines truly were. The PAT asked management to take the 14 steps involved in the OA process and determine "actual and realistic timelines," or management recommended timelines. This was the first time in AFOMS history that the whole OA process was examined to determine some benchmark, based on time, by which to evaluate or direct effectiveness efforts. Management obliged. The PAT merged the time required to perform these four steps with the actual and desired timelines. The above mentioned four steps had the following differences. For "Close Field Administration", the actual was 12.3 weeks (61 workdays) compared to the management recommended of 3 weeks (15 workdays). For "Analysis", the actual was 7 weeks (35 workdays) compared to the management recommended of 6 weeks (30 workdays). For "Report Writing", the actual was 9 weeks (45 workdays) compared to the management recommended of 6 weeks (30 workdays). Finally, for "Routing of OSR", the actual was 18 weeks (90 workdays) compared to the management recommended of 6-9 weeks (30-45 workdays). Review of the differences between actual timelines for the four steps within the OA process with management recommended timelines (desired state) led the PAT to develop a problem statement from which improvement opportunities would be directed. The problem statement read "Upon review of the OA process, time became our primary focus. On the average, our OA process takes 2 years and 3 months to complete, a timeline too long to satisfy our customers and ourselves."

The third step in the CIP dealt with "identifying and verifying the root cause(s)" for time delays within a step requiring improvement efforts. The goal in this step was to take the problem statement, discovered in step two, and focus on the symptoms (actual sub-steps within a step), to discover and verify the root cause(s) for each of these steps. The PAT used several analysis tools to explore data to include a cause-effect analysis of the problem, pareto charts, and checksheets. After considerable analysis, the following root causes were identified and verified. The *primary root cause(s)* (i.e., cause with the greatest impact or potential for improvement) was then selected. For "Close Field Administration" the root cause was found to be inefficient methods for correcting summaries. For "Analysis" the root causes were determined to be (1) computer request forms not user friendly, and (2) unstructured training/poor learning retention. For "Report Writing" the root cause was found to be unstructured training/poor learning retention on OSR writing. For "Routing of OSR" the root cause was determined to be lack of performance standards.

The fourth step in the CIP was to "take action". During this step efforts were directed at planning and implementing actions to correct root causes. The PAT took the root causes (as stated in the preceding paragraph) within the four steps and evaluated possible actions. The PAT brainstormed for any and all possible solutions for fixing the root causes. These potential solutions were scrutinized against a weighted matrix, that included, feasibility, effectiveness, time, and cost. These criteria were used to ensure that any solution selected would be the *best* possible solution.

The proposed solution, for "ineffective methods for correcting summaries" in the "Close Field Administration" step, was to make use of a new and innovative program already in use in the Squadron, the Automated Summary Program. This Automated Summary program allows the analyst to have explicit and complete control over cleaning up summary data, through the use of a distributed client-server application (i.e., the analyst can run a program on his/her desktop that accesses information from a remote data base). In the past, analysts would make changes on paper copies of the summary, route them to another section in the Squadron to make electronic changes, then sent back to the analyst to ensure the changes asked for were in fact done. This process would continue until summaries were correct. This chain of events could be the most time consuming and arduous task in the close field administration process.

The proposed solutions, for "(1) computer request forms not user friendly, and (2) unstructured training/poor learning retention" in the "Analysis" step, were to hurry along the requested "Automated Analyst Request System/Manipulation of CODAP Products" initiative for application development and to use the structured OMYO Mentor Training Program as it applies to analysis. The request would automate the process of ordering computer or paper forms and further standardize CODAP products. The structured OMYO Mentor Training Program would guarantee standard, consistent, and efficient methods of training that would allow analysts to understand the relationship between computer requests, actual products, and use of these computer products necessary for accurate analysis.

The proposed solution, for "unstructured training/poor learning retention on OSR

writing" in the "Report Writing" step, was the OMYO Mentor Training Program, as it applies to report writing. As with the solution for Analysis, the Mentor Training Program would guarantee a standard, consistent, and efficient method of training. This training will be useful in drafting the written narrative for an OSR.

Finally, the proposed solution, for "lack of performance standards" in "Routing of OSR" was the implementation of suspense dates. Once these proposed solutions were ironed out, both measurement tool(s) and a timeline for implementation were developed for each solution in each step. The following list provides the "what", "when", and "resources" required for each proposed solution:

*"Close Field Administration"*

- o proposed solution: Automated Summary Program

- o measurement tool: Automated Summary Tracking Form

- o timeline: after beta test – measure for 6 months

*"Analysis"*

- o proposed solutions:
  (1) computer initiative for application development and
  (2 ) Structured OMYO Mentor Training Program

- o measurement tool: OMYO Project Tracking Form

- o timeline: (1) 6 months after computer initiative for application development and

    (2) immediately measure effect

*"Report Writing"*

- o proposed solution: Structured OMYO Mentor Training Program

- o measurement tool: Report Writing Checklist

- o timeline: can immediately measure effects

*"Routing of OSR"*

- o proposed solution: Updated OMYO OSR Routing Sheet with Suspense Dates

- o measurement tool: Updated OMYO OSR Routing Sheet with Suspense Dates

- o timeline: can immediately measure effects

These recommended improvements were adopted and implemented by management. The PAT has initiated a measurement phase to document the impact(s) of these recommended improvements to the OA program. Several of the improvements can be assessed within 6 months. However, a couple improvements require between a 12 to 18 months for measurement. After all the measurement phases are complete, the PAT will assess any and all benefits to the OA program.

## *Results*

The PAT analyzed and identified 14 processes within occupational analysis in order to determine which areas could best benefit from recommended improvements. After further examination, 4 of the 14 steps were revealed as areas the Occupational Analysis Program had direct measurable control over. For each of the four steps in analysis, significant time delays were noted and root causes for these lags were determined. To date, the PAT has completed four of the seven steps of the CIP. All measurement tools are being used to assess if the target improvement was met, if it was successful, or if it was not – then determine additional actions to be taken. The final two steps in the CIP address: standardizing solutions, publish revised new methods and procedures for performing occupational analysis and to establish periodic review point; and planning for the future. As per the PAT's charter, their goals were to improve their part of the OA process while eliminating unnecessary time lags. The PAT is confident these improvement efforts will not only eliminate unnecessary time lags but also improve the OA process through standardized education and training. A further benefit to this quality initiative is the implied encouragement and challenge to other sections within the Squadron to review and evaluate their contributions and potential improvements to the OA process.

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